APPENDIX A – DESIGN SPECIFICATION

Project Goals

The Municipal Water District of Orange County (MWDOC) has an immediate requirement to develop a database of the participants in its various Rebate and Conservation Programs. Although the Rebate Programs are the initial impetus for developing this database, MWDOC staff sees many potential uses for a database of the program participants within the District’s area of influence.

The requirements for this project are detailed below. For the purposes of this Request for Information (RFI) you are only asked to respond to the Phase I requirements, except as noted.

Phase I – Rebate Program Tracking

1. Build a master database over time with the ability to query participation in the programs by participant, area, type of rebate device, water agency, etc.

2. Gather information about the participants in the conservation programs with the ability to market new programs to previous participants.

3. Track the installation and inspection process for the various programs, including the ability to record customer service issues such as logging direct customer contact, site visits, and problem resolutions.

4. Ability to report on this information to member agencies through reports and ad hoc inquiries and reports.

5. Track funding sources, rebates paid and administrative fees by program and by grant

6. Track programmatic water savings using a given water savings rate per device or given unit of landscaped area.

Phase II – Landscape Performance and Member Agency participation

1. Build a master database of retail customers that are participating in the Landscape Performance Certification Program (LPCP).
2. Establish water budgets for participants based on existing landscaped area, number of meters, irrigated area by meter and additional attributes that may be identified during development.

3. Collect water use data from member agencies for comparison of the budget to actual water report on water savings. Member agencies should be able to automatically upload this information via the program website.

4. Online access for reporting to MWDOC by the member agencies and for the member agencies to access information about the rebates and savings in their area.

5. Provide participants in LPCP online access to review their Irrigation Performance Reports by individual water meter and by site, which may have multiple meters.
Software Design Overview

Function 1: Program Setup

MWDOC is currently managing four landscape water conservation programs: SmarTimer, Rotating Nozzle, Synthetic Turf and Landscape Performance Certification. These programs are typical of the kind of programs MWDOC has managed in the past and most likely typical of the types of programs MWDOC will be handling in the future. The programs share many common data attributes, but each has its own unique set of attributes. The software must be designed as a relational database so that the shared attributes are not duplicated, thus reducing errors and inconsistencies that could be introduced into the database and the unique attributes are dynamically defined for each program.

Software Feature: The ability to set up a new program in the database by defining the unique attributes associated with the program. The system should then be able to provide a screen or screens that process these unique attributes based on the program definition. MWDOC will be implementing a new program for Turf Replacement and will use this program to test this functionality. It is key feature that will allow MWDOC to create new programs without additional software development.

Function 2: Data Gathering

Currently the process of issuing the program participant rebates is handled by third party vendors (currently 2 but could be any number). These companies provide MWDOC with the results for each program participant application they receive. Today that data is imported into an Access database to consolidate the data and to provide some of the reporting required by MWDOC. MWDOC will want the ability to import vendor data into the new Conservation Database as well as to import the information from the existing Access database.

Software Feature: The ability to take data from an Excel spreadsheet, or in some other standard format such as comma delimited, and map each of the attributes in the spreadsheet or file to an attribute in the Conservation Database and then import the data, thus populating the database. Once the database mapping is completed we should be able to save the mapping as a template to be used in the future. During the upload process appropriate data editing needs to occur and error reports must be published when errors are identified.

Function 3: Database Maintenance and Tracking

Once data has been imported into the Conservation Database, MWDOC needs the ability to access and update or correct the data. In addition, MWDOC wants the ability to track any contact with a customer regarding a particular application, installation and resulting rebate in a program. MWDOC needs to be able to query the data within the database by parcel number, location (address), application number, type of rebate device, water agency and agency ID, or customer’s phone number. This list should not be considered all inclusive but is an example of the flexibility desired in querying information in the database. Once the individual application or installation has been identified it should be displayed for maintenance.
**Software Feature:** Display screens need to be developed that will provide for all of the functions described above. The approach taken may consist of two parts -- first identifying the parcel or customer and then showing the various programs in which they have participated. From the participation list the user could then select the desired program to review. At this point corrections could be made or comments entered to record what has transpired. Safeguards should be incorporated to allow only staff members with appropriate security to make corrections to the database.

**Function 4: Reporting**

Although we have many standard reports that we can define and are defined in the Reporting Section of this document, we anticipate that we cannot define all future reporting requirements.

**Software Feature:** MWDOC therefore wants the database format that is used to develop this system to be SQL and ODBC compliant. The database should be structured so that it can be easily used with Microsoft Access or some other readily available reporting tool such as Crystal Reports.

**Function 5: Extracting Data**

As a counterpoint to the process used for Data Gathering, MWDOC will need the ability to extract data from the database for use in Excel or other applications.

**Software Feature:** The ability to export data should allow MWDOC to identify selection criteria based on the same data attributes identified in the Data Maintenance and Tracking Function. Once the selection criteria have been identified, the operator should then be able to select the data attributes to be exported. Data should be exported into a standard format such as comma delimited that can be used by other programs such as Excel or Access.
Phase I - Rebate Program Tracking
Workflow

This next section documents the workflow for the existing rebate programs. A brief description of each of the programs and workflow charts follow. Each of the workflow charts reference key documents and reports. All of these programs are used to encourage both residential and commercial users to “Be Water Wise” by taking steps to reduce their water consumption and thereby reducing water bills. In addition, they receive a rebate based on each individual program’s rules and regulations. Funding for these programs is provided through grants from various local, state and federal agencies.

Current System

There are three active rebate programs: SmarTimer, Rotating Nozzles and Synthetic Turf. The process for issuing the rebates and gathering the rebate information for the Conservation Database is basically the same irrespective of the program. In all cases an application is obtained by the program participant either from their local Retail Water Agency or from a website. An application is completed by the program participant and submitted for approval to the Rebate Program Administrator (RPA), as listed on the application.

Inspections are ordered to prevention fraud, although for the Nozzle and Synthetic Turf programs only random inspections completed. Inspections are required for all SmarTimer installations both residential and commercial. Once the RPA has approved the application they forward an Excel spreadsheet to MWDOC containing a list of the approved applications. MWDOC imports this information into an Access database that is used to produce an inspection work order that is forwarded to the inspection vendor. Once the results of the inspection are complete the results are reported back to the MWDOC and the results are entered into the database. From this database MWDOC returns a file to the RPA of the successful inspections at which time the RPA issues a rebate check to the program participant. The inspection vendor invoices MWDOC for the work completed and provides an Excel spreadsheet and supporting documentation that is used to cross check the information provided by the RPA.

Monthly the RPA invoices MWDOC for the work completed and provides a report of the installations completed in the form of a spreadsheet. This spreadsheet is imported into an Access database by MWDOC staff. MWDOC staff reviews the invoice and submits it to the finance department for payment. The Access database is used to provide some of the numbers required for the reports that MWDOC staff must prepare to obtain reimbursement from the various grants that are used to fund these programs. Much of the reporting required to obtain reimbursement is completed manually requiring a great deal of staff time.

Proposed System

The initial process of requesting the rebate and the administration of the installation and issuance of the rebate check is to the best of our knowledge to remain as it is. The significant change will be in the building of a system that can import data from multiple sources (RPA, inspection vendors, water agencies, etc.); produce work orders and capture the inspection results; track rebates by program, site, rebate type, water agency, etc; present monthly numbers and participant information in a
fashion that can be used to reduce staff time when preparing the reimbursement reports from the various funding sources, and improvement of customer service by tracking customer service calls.
SmarTimer Rebate Program – Residential and Commercial

Property owners obtain a Rebate Application form (R-1) from their local water agency, Rebate Administrator, or program website. The property owner must complete the application and submit the form to the Rebate Administrator as shown on the application.

Rebate Administrator reviews the application and if accepted issues an inspection request and forwards the information to MWDOC in the form of a spreadsheet. If the application is rejected it is returned to the applicant and the rejection is reported to MWDOC with the next billing. Data about any rejected applications is loaded into the Conservation Database. Based on the inspection results the Rebate Administrator completes the application processing and when appropriate issues a rebate check (R-3) to the participant.

Application data is uploaded into the Conservation Database from the RPA spreadsheet.

An Inspection Work Order (R-2) is issued for to the Inspection Vendor to complete a site inspection and certify the installation.

At the end of each month the Inspection Vendor sends an invoice, supporting documentation and spreadsheets (R-6) to MWDOC. The invoice is reviewed and forwarded to accounting for payment. The spreadsheet is used to update the Conservation Database.

MWDOC exports the results of the inspections to create a spreadsheet that is forwarded to the Rebate Administrator.

Monthly the Rebate Administrator compiles the data of the rebates issued and submits this information to MWDOC in the form of a spreadsheet (R-4). This information is then uploaded into the Conservation Database. Data from the Rebate Administrator and the Inspection Vendor are matched using the original application number.

The Conservation Database is used on a monthly basis to produce reports to the various funding agencies for reimbursement and to track the progress of the rebate programs. Additionally queries and ad hoc reports will be processed on against the database when needed.
Synthetic Turf Replacement
Rotating Nozzles

Resident obtains a Rebate Application form (R-1) from their local water agency. The resident must complete the application and submit the form to the Rebate Administrator as shown on the application.

Inspection work orders are issued at random intervals to prevent fraud, otherwise the rebate is simply issued to the customer.

Inspection vendor (MRCD) receives the work order and completes the inspection. The completed work order is returned to the Rebate Administrator. At the same time MRCD sends an Invoice, Supporting Documentation and Spreadsheets (RC-6) to MWDOC. Inspection data will be provided in a standard format so that it may be uploaded into MWDOC’s database.

If a work order is issued the work order is returned to the program administrator and if the turf has been installed the rebate is issued. If no inspection was ordered the rebate is prepared.

MWDOC receives invoice and spreadsheet from Rebate Administrator and processes data for payment to Rebate Administrator. The program spreadsheet (R-5) is loaded into an access database maintained by MWDOC. The data received from the Rebate Administrator and the Inspection Vendor are cross referenced by the application number.

Data is gathered from the database and then hand entered into spreadsheets to produce the required reports. See section detailing reports for the report requirements.
Phase II – LPCP and Member Agency Access
Workflow

The LPCP is a service provided to landscape professionals, commercial users and homeowner’s associations to assist them with monitoring their water use and water conservation. Participants in the program use the Internet to track their irrigation meter’s monthly water use and compare it to a custom water budget. This enables property managers and landscapers to easily identify areas that are over watered, and enhances their accountability to homeowner association boards.

Participants also receive a monthly Irrigation Performance Report directed to the Property Owner, Property Manager and Landscaper to:

- Easily track irrigation water use
- Help reduce water bills
- Improve the health, appearance and value of landscapes
- Protect the environment by decreasing urban runoff
- Maintain compliance with NPDES requirements

A potential participant must complete an application and return it to the Program Administrator. Once the application is accepted the participant is added to LPCP website and provided with a user login and password. At this time the Program Administrator may conduct survey of the property recording the parcel size, number of meters, type of landscape, etc. This information is used to calculate a water budget for each dedicated meter owned by the participant. The member agency is notified by the Program Administrator that one of the customers has signed up for the program and monthly consumption data for the participant is requested. The consumption data is added to the website so the participant can review the status of the water savings or over usage and whether or not they need to make adjustments.
Landscape Performance Certification Program

Property managers/landscapers/owners/HOA Board Members may obtain an Enrollment Application (L-1) from www.waterbudgets.com. The application is then completed and submitted to the Program Administrator as shown on the application.

Program Administrator reviews the application to verify the site is not already enrolled in the program. If the site is already enrolled the application is returned to the submitter.

New enrollees and added to the program website and the login information is forwarded to the customer via email and a follow-up letter (L-2).

The Program Administrator will visit the customer’s site to measure irrigation areas for each meter. The information collected is uploaded to the website and used to calculate the site’s water budget. This budget will also be used to calculate the customer’s water savings when compared to their usage.

Each month the Program Administrator will requests the customer’s water consumption history from the appropriate Retail Water Agency via an Excel Spreadsheet (L-3). When the spreadsheet is returned to the Administrator this information is added to the website.

All of the data gathered are loaded into the Landscape Database. The database should be designed to that MWDOC can easily complete ad hoc inquiries and reports.

Each month once the data has been loaded the customer will receive email notification that the water savings has been calculated. The Program Administrator will be allowed to invoice MWDOC on a monthly basis reporting the number of meters and irrigable area added to the program. MWDOC will have the ability to access the landscape database in order to perform Ad Hoc Inquiries and Reports and to extract data as needed.
REPORTING REQUIREMENTS

Tracking Reports are currently generated using a spreadsheet into which data is manually entered. Three reports are created.

- **SmarTimers Installed by Agency (TR-1)**
  This report captures the number of timers both residential and commercial that have been installed within each water agency distinguishing between MWDOC and non-MWDOC agencies. The counts are tracked by month and fiscal year. In addition, the report calculates the Cumulative Water Savings across all fiscal years.

- **Valve Totals by Agency (TR-2)**
  This report captures the total number of valves both residential and commercial that have been installed within each water agency distinguishing between MWDOC and non-MWDOC agencies. The counts are tracked by month and fiscal year.

- **Orange County’s Retail Water Agency – Acre Usage – in the Save A Buck Program**
  This report is a report indicating the remaining funds and acres each water agency has available for commercial agencies to participate in the SmarTimer Program. The report shows the original allocation of funds and acreage by agency and the reports on the acres using that to calculate the remaining funds and acreage.

- **Water Savings by Program**
  This report tracks water savings by program by month and fiscal year since program inception.

Funding Reports are used to report to various funding agencies for reimbursements. Currently MWDOC produces four funding reports, but the system must be flexible enough so that in the future reports may be produced for new funding sources as well as the new programs.

- **Santa Ana Regional Water Quality Control Board Grant Reimbursement (FR-1)**
  This request requires a number of documents be prepared that are gathered from various sources outside of the Conservation Database. Based on the existing report it appears it will need to continue to be prepared manually, however with the implementation of the new financial system expenditure data should be more readily for the preparation of the reports.

- **USDA Natural Resources Conservation Service Quarterly Report (FR-2)**
Information for this report is gathered from various sources outside the Conservation Database. Sections A through E will probably continue to be prepared as they are today. Section F consists of copies of invoices or reports provided by the Inspection and Rebate vendors and should not change.

- **Metropolitan Water District of Southern California Weather Based Irrigation Controller (F-3)**
  The report provides a recap of Smart Timer installations during a monthly period requesting reimbursement for that period. The cover letter and recap will need to continue to be produced manually. The supporting documentation should be available directly from the Conservation database.

- **Agency Report (F-4)**
  Each month a letter is sent to the participating agencies requesting the funding they are to provide for any valves installed in their jurisdiction. The report consists of a cover letter and a report listing the installation(s). This report should be produced automatically using the information in the Conservation database.

- **DWR for Nozzles (F-5)**
  Each month a report totaling the residential and commercial rotating nozzles and high efficiency rotary nozzles that were installed in service areas approved by the Urban Water Management Plans (UWMP) are generated. The report is used to determine the administrative, marketing, incentive, and match costs that are billed to DWR on a quarterly basis.
Data Attributes Definitions

**Site Data:** This table will contain the attributes that define each site within the District's area of influence. The Site will be uniquely identified by its parcel number, the water agency servicing the site, and the account number assigned by the agency to that site.

- **Parcel Number:** This is the assessor’s parcel number assigned by the County of Orange.
- **Water Agency:** This will be used to identify the agency that services the site. A list of agency codes will be used to identify each agency.
- **Agency Account No:** Each water agency assigns an account number to the sites they service.
- **Housing Type:** A code used to indicate whether the site is residential, commercial, irrigation, etc.
- **Total Property Area:** is total size of parcel including building and landscaping area
- **Verified Landscape:**
  - **Sq Ft:** is the square footage covered by landscaping
  - **% Turf:** is the square footage covered by turf
  - **% Shrubs:** is the percentage of the landscape that is covered by shrubs
  - **Total irrigated area:** the area that is actually irrigated
- **Microclimate:** indicates site is in a coastal, central or foothill region

**Contact Data:** this table will contain the attributes that contain the contact information for a site. Any number of contacts may be collected such as Home Owners Association, Property Management, Landscape Contractor, Resident and Owner.

- **Parcel Number:** is the assessor’s parcel number assigned by the County of Orange.
- **Agency Account No:** Each water agency assigned a number to the sites they service.
- **Application No:** is assigned by the Rebate Administrator and is unique to a request for a rebate.
- **Contact Data**
  - **Contact type:** code identifying contact type such as HOA or Owner
  - **Last Name:** of the contact
  - **First Name:** of the contact
  - **Title:** contacts person’s title (optional)
  - **Street Number:** the street number for the contact location.
  - **Street Dir:** the direction of the street such as north or south and is optional.
  - **Street Name:** name of the street for the contact
  - **Unit No:** for the site such as; Suite 102 and is optional
  - **City:** for the contact address.
  - **State:** for the contact and should be a valid 2 character state code.
  - **Zip:** + 4 code for the contact address.
Application Data:  Table will contain a record for each application submitted by a program participant in the rebate program. Application data will be linked to the Site Data using either the parcel number or agency account number.

Parcel Number:  is the assessor’s parcel number assigned by the County of Orange.
Agency Account No:  Each water agency assigned a number to the sites they service.
Application No:  is assigned by the Rebate Administrator and is unique to a request for a rebate.
Account Type:  is used to indicate the type of rebate that is being requested.
Application Date:  is the date of the application.
How Heard:  is used to gather information on how the program participant heard upon the rebate program.

Contact Data:
Owner/Renter:  indicates whether the owner or tenant should be contacted regarding the installation.
Last Name:  is the last name of the person to be contacted
First Name:  is the first name of the person to be contacted
Day Area Code:  is the area code for the day time contact phone number
Day Phone No:  is the phone number the for the day time contact
Alt Area Code:  is the area code for an alternate contact phone number
Alt Phone No:  is the alternate phone number for the contact
Best time:  is the best time to reach the contact
Email:  is the email address for the contact.

Payee Data:
Last Name:  is the last name of the person who is to receive the rebate
First Name:  is the first name of the person who is to receive the rebate
Street No:  is the street number for the payee address
Street Dir:  is the direction for the street for the payee address
Street Name:  is the street name for the payee address
Postfix:
Unit No:  is the unit number (optional) for the payee address
City:  is the city for the payee address
State:  is a two character field for the state for the payee address
Zip:  is the zip code for the payee address
Area Code:  is the area code for the payee phone number
Phone No:  is the payee phone number
SSN:  is the payee social security number
Email:  is the payee email address
Sub Ag ID:
Sub Ag:
Account No:
Check Date:  is the date the rebate check was issued.
Check Number:  is the number of the check that was issued.
Rebate Amount:  is the actual amount of the rebate received by the payee.
Trans complete:  is used to indicate the transaction has been completed
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Completion Date: is the date the transaction was completed
Comments: any general comments that are to be noted about the transaction
Rejected Data:
  By: is used to record the person that rejected the application
  Date: is used to record the date the application was rejected.
  Reason: is used to record why the application was rejected. This is a text field allowing for the description of the rejection.

Installation Data: This table contains the basic information about the installation that was completed to receive the rebate.

  Parcel Number: is the assessor's parcel number assigned by the County of Orange.
  Agency Account No: Each water agency assigned a number to the sites they service.
  Application No: is assigned by the Rebate Administrator and is unique to a request for a rebate.
  Program Type: used to indicate the type of program that the program participant has installed.

  Installation Data:
    Purchase Date: is the date the program participant purchased the materials for the rebate.
    Install Date: is the date the program participant either installed or had installed the rebate device(s).
    Installed By: is used to indicate who actually did the installation
    Price: is the price of the materials used for the installation
    Installed Price: is the price charged for the installation of the materials
    Total Cost: is the total cost incurred by the program participant for the installation

Inspection Data:
  Verification: indicates whether or not the installation has been verified
  Date: indicates the date the inspection was completed
  Inspection Name: is the name of person who completed the inspection
  Category: a one character field indicating the type of verification that was completed
  Comments: is a text field used to gather any notes made by the inspector regarding the installation.

Program Data: This table contains data regarding the physical aspects of the installation. The attributes in this file may change based on the program type. As it is defined below it relates to the Smart Time Program, but other programs may require additional information or not use some of these attributes.

  Parcel Number: is the assessor’s parcel number assigned by the County of Orange.
  Agency Account No: Each water agency assigned a number to the sites they service.
  Application No: is assigned by the Rebate Administrator and is unique to a request for a rebate.
  Program Type: used to indicate the type of program that the program participant has installed.
Landscape:
  Sq Ft: is the square footage covered by this installation as noted on the application
  % Turf: is the percentage of the landscape that is turf as noted on the application
  % Shrubs: is the percentage of the landscape that is shrubs as noted on the application

Verified:
  Sq Ft: is the square footage covered by this installation as noted by the inspector
  % Turf: is the square footage covered by this installation as noted by the inspector
  % Shrubs: is the percentage of the landscape that is shrubs as noted by the inspector.

Number of:
  Current clocks: is the number of clocks that were installed prior to the installation
  Proposed clocks: is the number of clocks the program participant is proposing be installed
  Current valves: is the number of valves that were installed prior to the installation
  Proposed valves: is the number valves the program participant is proposing be installed
  Clocks installed: is the actual number of clocks that were installed
  Valves installed: is the actual number of valves that were installed
  Manufacturer: is the manufacturer of the clocks and valves that were installed
  Meter type: is used to indicate the type of meter that is installed at this location.

Confirmation:
  Received Date: is the date on which the confirmation of the activity was completed
  Number of Valves: is the number of valves that was noted which the confirmation was completed

Castoff Controller:
  Manufacturer: is the manufacturer for the controller that was replaced
  Model: is the model number of the controller that has been replaced
  Number of Valves: is the number valves that were replaced
  Age: is the age of the controller that was replaced

Water Supply:
Waste Hauling:

MASTER DATA
Databases generally have a number of master files that are used to check the accuracy of data during entry. The number of files needed in this case is limited but should as a minimum consist of the following:

**Agency**: is a table of the agencies that are within MWDOC's jurisdiction.
- Agency ID
- Agency Name
- Agency Address
- Contact Name
- Phone
- Fax
- Email
- Mailing Address
- Number of services
- Acreage

**Program**: is a table of the programs that are valid. As a minimum the table will contain the program code and program name. This table should probably also be used to the define the unique attributes for the program.